

# A Study to Evaluate the Causes of Delayed Presentation for Cataract Surgery at a Tertiary Eye Centre, Odisha, India

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## ABSTRACT

**Introduction:** In spite of being advised surgery by doctor and several health schemes made available by the Government of India for the economically backward section, people still present late for surgery, inviting many complications in the long run.

**Aim:** To study the causes of delayed cataract surgery in Below Poverty Line (BPL) patients in a tertiary health care centre in Eastern India.

**Materials and Methods:** The present hospital-based and cross-sectional study included 58 patients who presented to the Outpatient and Emergency Department of a tertiary care hospital in Eastern India between December 2020 to April 2021. At presentation, detailed history was taken and patients were asked questions related to the cause of delay, which was categorised into barriers to patient's attitude and barriers related to cost, affordability and service delivery. Comprehensive ophthalmological examination for each and every patient was done. Routine blood investigations needed for cataract surgery were done. Surgery was done for all

cases by a single surgeon and intraocular complications if any were noted.

**Results:** A total of 58 patients included in this study, females (57%) were more than males (43%). Majority of them were from semi urban areas (13.79%). A 60% were dependent on family members for their expenses. About 94.8% had government insurance schemes but still had financial constraints which caused delayed presentation. A 70.7% of people did not attend hospital due to negative peer group effects and almost 84.5% people had no direct means of transportation to the hospital. Fear of surgery (96.6%) and fear of contracting Coronavirus Disease-2019 (COVID-19) (94.8%) were certain other factors which caused delay in presentation for surgery.

**Conclusion:** Through this study, certain possible reasons were found, catering to social, economic as well as factors like fear of surgery, negative peer pressure, financial constraints responsible for the delay in acceptance of cataract surgery in such a set up.

**Keywords:** Delayed treatment, Patient compliance, Socio-economic status

## INTRODUCTION

Cataract is the single most cause of preventable blindness. Globally, 33.4% of blindness and 18.4% of all moderate and severe vision loss which was roughly 10.8 million and 35.1 million respectively, was contributed by cataract alone [1]. The numbers are more in low income countries than in high income countries. Cataract related blindness accounts for as high as 80% as per some studies in India [2-5]. Increase in life expectancy results in increase in the number of people aged 60 years or more, which in turn causes an increase in cataract number [6]. This creates a treatment gap in developing countries like India. The treatment and subsequent visual prognosis in cataract cases is dependent on early surgical intervention. There has been vast improvement in the availability of hospitals providing eye health care as well as of the quality of cataract surgery [7-12]. There are government insurance schemes available where, the cataract surgery is funded by the government but the surgical acceptance is still low amongst few sections of society. The study aims to find causes which are responsible for causing this delay.

## MATERIALS AND METHODS

The present hospital-based cross-sectional study included 58 patients who presented to the Outpatient and Emergency Department of a tertiary care hospital in Eastern India. It was carried out between December 2020 to April 2021. The study was approved by the Institutional Review Board and ethical clearance was obtained. (KIIT/KIMS/IEC/396/2020). The study adhered to the tenets of the declaration of Helsinki.

**Inclusion and Exclusion criteria:** The study included patients of age group 50-80 years and both sexes, with complaints of decreased visual acuity, the principal cause of which was cataract in advanced

stages. Exclusion criteria included patients who were not included in the BPL category and those whose surgery was delayed because of uncontrolled systemic diseases for long periods of time.

## Study Procedure

Cataract was graded on the basis of World Health Organisation (WHO) cataract grading system where, greater than grade 2 (nuclear, cortical or posterior subcapsular) were considered advanced cataracts along with total or hypermature cataracts [13]. The delay in surgery was considered to be the time interval between initial diagnosis of operable cataract and presentation to us for surgery.

At presentation, detailed history was taken and patients were asked questions related to the cause of delay as per the questionnaire framed [Appendix-1]. A set of robust questions based on present clinical experience were framed in a way that was sensitive to the information sought. Pretesting was done by initially circulating it among few patients and was internally validated by faculties of the department of research and development, ophthalmology and community medicine. Several similar studies were referred to for framing the questions [14,15]. Questions were broadly categorised into barriers related to patient's attitude and barriers related to cost, affordability and service delivery. The purpose was to seek patient and attender's knowledge about the disease, barriers pertaining to financial status of patients, social taboos they face, peer group effect or any other personal reason for not seeking out care in time. Questionnaire was distributed by the treating ophthalmologist and patients were given half an hour to read and answer the questions. Attenders were asked to help only when the patient was unable to fill the questionnaire due to decreased vision or illiteracy. Comprehensive ophthalmological examination for each and every patient was done. This included visual acuity examination, tonometry, gonioscopy, detailed fundus examination,

B scan ultrasonography where required, lacrimal passage irrigation and biometry. Routine blood investigations needed for cataract surgery was done. Cataract surgery (phacoemulsification or small incision cataract surgery) was done for all cases under local anaesthesia by a single surgeon and intraocular complications, if any, were noted.

## STATISTICAL ANALYSIS

Data was collected and analysed using IBM Statistical Package for the Social Sciences (SPSS) v 23.0 software. Chi-square test was used to analyse data with p-value <0.05 considered to be significant.

## RESULTS

A total of 58 patients were included in the study. The mean age of the population was 64.8±10.06 years. A 32 (55.2%) of total patients were under 65 years age at presentation and 26 (44.8%) were over 65 years of age. The study group consisted of 25 (43%) males and 33 (57%) females. Majority of present patients were from rural areas. About 35 (60.34%) of total patients were associated with various co-morbidities like diabetes mellitus, hypertension, kidney and heart diseases and neurological problems. A 40 (68.97%) of present patients were presented for surgery after a delay of more than two years [Table/Fig-1].

Variables	No. of participants
Mean age (In years), (Mean±SD)	64.8±10.06
<b>Sex</b>	
Male	25 (43%)
Female	33 (57%)
<b>Address</b>	
Urban	2 (3.44%)
Semi-urban	8 (13.79%)
Rural	48 (82.76%)
<b>Chronic illness</b>	<b>35 (60.34%)</b>
<b>Delay</b>	
≤2 years	18 (31.03%)
>2 years	40 (68.97%)

[Table/Fig-1]: Demographic data.

On analysis of the occupational profile of the patients we found that maximum i.e., 35 (60%) of present patients had no active income of their own and were dependant on family members as a source of income. A 13 (22%) were farmers, 9 (16%) daily wage labourers and only 1 (2%) had businesses of their own.

A total of 53 (91.4%) patients felt their cataract was not hard enough and they could wait further before surgery. These are the patients who presented with vision <6/60. About 41 (70.7%) people gave old age as an excuse for not coming up for surgery [Table/Fig-2].

Barriers related to patient attitude	Yes n (%)	No n (%)
Were you afraid of undergoing an operation:	42 (72.4%)	16 (27.6%)
Were you worried about the cost of operation?	56 (96.6%)	2 (3.4%)
Loss of pay due to stay in the hospital?	33 (56.9%)	25 (43.1%)
You feared that operation would lead to loss of eyesight?	32 (55.2%)	26 (44.8%)
You feared that operation would lead to death?	17 (29.3%)	41 (70.7%)
You could see clearly with the other eye?	29 (50%)	29 (50%)
You could manage daily routine work?	39 (67.2%)	19 (32.8%)
Cataract was not mature?	53 (91.4%)	5 (8.6%)
Busy with work?	40 (69%)	18 (31%)
You thought blindness was god's will?	41 (70.7%)	17 (29.3%)
COVID-19 fear?	55 (94.8%)	3 (5.2%)
Are you a female?	33 (56.9%)	25 (43.1%)
You are very old?	41 (70.7%)	17 (29.3%)

[Table/Fig-2]: Barriers related to patient attitude.

Conveyance was a major problem for a majority of present study population. Maximum of present patients (94.85%) lived far away from hospitals where surgical services for cataract were available. Out of them about 49 (84.5%) did not have access to direct transport facility to the hospitals. Almost 48 (82.75%) patients lived in remote villages which were not linked to main roads. This data sheds light on the availability of affordable health care at arm's length [Table/Fig-3].

Barriers related to service delivery, cost and affordability	Yes n (%)	No n (%)
Do you live far from hospital?	55 (94.8%)	3 (5.2%)
Your village/town not linked to the main road?	26 (44.8%)	32 (55.2%)
No transport facility from town to hospital?	49 (84.5%)	9 (15.5%)
Don't know any other person who has undergone this surgery?	5 (8.6%)	53 (91.4%)
No one would come along with you?	38 (65.5%)	20 (34.5%)
Family income not sufficient?	57 (98.3%)	1 (1.7%)
Do you hold any insurance scheme?	55 (94.8%)	3 (5.2%)
Would you get operated for cataract on your own expense if scheme not available?	16 (27.6%)	42 (72.4%)

[Table/Fig-3]: Barriers related to cost, service delivery and affordability.

All patients in present study group underwent cataract surgery, two persons had posterior capsular rent and two had iridodialysis which were managed successfully. Comparison of preoperative and postoperative visual acuity using chi-square test showed significant p-value of 0.012 for patients who presented after a delay of more than two years while it was not that significant for patients presenting after a delay of less than two years (0.568) [Table/Fig-4].

Timeline	<2 years		p-value	>2 years		p-value
	Pre-op	Post-op		Pre-op	Post-op	
<6/60	7 (12.07%)	10 (17.24%)	0.568	9 (15.52%)	1 (17.24%)	0.012
6/60-6/18	9 (15.52%)	6 (10.34%)		26 (44.83%)	28 (48.28%)	
≥6/12	2 (3.45%)	2 (3.45%)		5 (8.62%)	11 (18.97%)	

[Table/Fig-4]: Comparison of visual acuity before and after surgery with respect to presentation time (chi-square test) (N=58).

## DISCUSSION

Since, cataract is a significant cause of preventable blindness, several national and international programmes have been implemented in India to support infrastructure and manpower to make it possible. The National Programme for the Control of blindness (NPCB) in India is being implemented in a decentralised manner through District health societies and aimed to reduce the prevalence of blindness from 1.4-0.3% by 2020 [16]. We still have a long way to go. In order to achieve the set goals there has been noticeable improvement in cataract services as well as increase in the number of cataract surgeries, as per some studies [12].

It is well understood that the earlier the surgery for cataract, the better is the visual prognosis [17,18]. But there still remain several social, financial and knowledge related barriers as evidenced by present study.

Even with a small study group, the number of females was more than males in present study. Though not significant, this in some way reflects the gender bias deep rooted in present society and dependence on male members of the family in the rural and semi-urban areas. Ignoring female health care can be yet another social peril that we still face in the present era. Most of them were house wives and many of the males were also dependant on a single earning member of the family which was an obvious constraint in seeking healthcare. In cases where the earning member developed cataract it was even more difficult for the fear of loss of pay for the days the patient would be hospitalised. Hence, gender bias and

financial problems still remain forerunners as the cause of delay in seeking healthcare [18].

Almost, all of present patients were scared of the surgery and hence presented late. Maximum felt that the cataract was not mature enough and they were able to manage their day to day activities. Many of these patients delayed surgery because they were able to see with the other eye. This brings into light the knowledge gap that exists in the population. In present study, patients who presented with better preoperative vision were able to retain good vision as compared to people who had poor preoperative vision and studies have already proved that earlier (surgical intervention yields better results [17]. This corroborates with present study where the preoperative visual acuity had a greater bearing on the final visual outcome than the time of presentation. Looking at the type of present study population who were mostly females or in the elderly age group, it can be assumed that their visual needs and expectations were not very urgent for their family members.

In 29 patients of present study, other eyes were already operated which was almost 50% of present study population. They could manage their daily chores satisfactorily also did not turn up. This brings us to the issue of peer group effect. In spite of surgery in one eye being successful, people wanted validation and support from other people in their area which included spouses, family members, friends and neighbours to seek eye care. These factors have been noted to affect health seeking behaviour in the western countries too [19].

Good and accessible transportation facilities are very important while dealing with chronic diseases as well as diseases requiring surgical intervention because of the need for follow-up. Most of present study population was from semi-urban and rural areas and conveyance was a major issue for them. Most of the families did not have vehicles of their own to commute to the hospital. Not being directly connected to the main road caused additional problems as patients had to change two or three public modes of transportation to reach hospitals. This caused inconvenience as well as monetary and time loss to the patient's attendants and can be a major deterrent to follow up for surgery. This fact holds true both for developing and developed countries [20-22].

In the current scenario with the ongoing COVID-19 scare, routine health care services were deeply affected [23,24]. This was yet another reason for patients in our study to postpone surgery. Very few patients of present study group had the fear of death which shows that they had enough knowledge to not link mortality with routine cataract surgeries. The cataract surgeries that were performed at present centre had very few complications and all of them were managed with a good final visual outcome.

Ironically, though most of the people in present study were covered by several government insurance schemes, they still did not present at the appropriate time. Hence, financial constraint though a major factor is not the only one. Several social taboos, peer group effect, lack of adequate transportation, lack of knowledge about the disease process as well as the ease of availability of health services are equally responsible.

With several projects and treatable nature of the disease, herculean efforts are being made both at national and international level to tackle the problem. There is still a need to make people aware that affordable services ensuring good surgical outcomes are easily available. People need to have faith on the healthcare system and need to be educated more about the disease process and the complications associated with delayed treatment as well as several schemes made available by the government for the poor for a favourable outcome. Also, cataract surgery by and large has become a day care procedure where people do not have to stay overnight for surgical intervention and have fewer follow-ups [25]. Taking all these factors into account the treating doctor has to consider not only the clinical factors but also the socio-economic factors and frame the line of counselling accordingly.

Cataract is the leading cause of blindness in the world and complete visual recovery is possible by surgical correction at the right time. Delay in surgical correction leads to complications and thus negatively affects the visual prognosis. There are a lot of social and financial barriers which influence the patient's decision to opt for timely surgical correction. They need to be explored and addressed.

### Limitation(s)

The study suffers from limitations like small sample size and being based in a single hospital. All factors considered above are interdependent and influence each other. The collective effect of the admixture of all factors affects the patient's decision at the end. Hence, multicentric studies and with a bigger sample size can give a clearer picture. In third world countries, a number of factors affect the health seeking behaviour. We discuss several demographic, socio-economic factors or ignorance or taboos leading to delay in seeking eye care. This results in unrequited vision loss which could have been easily salvaged.

### CONCLUSION(S)

With advancement of medical technology life expectancy is increasing. Though the burden of cataract thus increases too, there is no dearth of skill and services to tackle the problem. Being a developing country the Knowledge, Attitude and Practices (KAP) aspect as far as cataract is concerned needs to be addressed by means of better counselling and outreach camps. Ours is a tertiary level, teaching hospital that caters mainly to low socio-economical patients and the schemes made available to these patients decrease the out of pocket expenditure for surgeries. Though, we have covered a small sample, still we have been able to uncover certain basic deficiencies in our system. Development of infrastructure is important but making people aware of these developments and of the services available is equally important. In addition, awareness of the cataract disease process and its treatment and prognosis needs to be spread at ground level. This will help us eliminate preventable blindness to a large extent.

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**[APPENDIX-1]**

Patient's name : \_\_\_\_\_

KIMSIP: \_\_\_\_\_

Date : \_\_\_\_\_ Age: \_\_\_\_\_ years

Sex: \_\_\_\_\_

1-Male	2-Female	3-Others
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Occupation: \_\_\_\_\_

Address: \_\_\_\_\_

1-Urban	2-Semi-Urban	3-Rural
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Chronic illness: \_\_\_\_\_

1-Yes	2-No
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If yes, treatment :

1-Adequate	2-Inadequate
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Complaints: \_\_\_\_\_

Duration of complaints: \_\_\_\_\_

Before the operation:

Parameters	Right eye	Left eye
BCVA		
IOP		

Diagnosis: \_\_\_\_\_

Any complication before or after the surgery: \_

1-Yes	2-No
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If yes, specify \_\_\_\_\_

BCVA after cataract surgery : \_\_\_\_\_

1-upto 6/12	2-6/18 to 6/36	3-<6/60
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Stay in the hospital for the surgery \_\_\_\_\_

3 days	>3 days
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Reason for longer stay \_\_\_\_\_

Barriers relating to patient attitude:

Barriers	YES	NO
1- Did you delay treatment because you were afraid of undergoing an operation?		
2- You were worried about the cost of the operation?		
3- Loss of pay due to stay in the hospital if yes specify-----		
4- You feared that operation would lead to loss of eyesight?		
5- You feared that operation would lead to death?		
6- You could see clearly with the other eye?		
7- You could manage to do your daily routine work?		
8- Your cataract was not mature?		
9- You were busy with work?		
10- You thought blindness was god's will?		
11- You are a female?		
12- You are very old?		

Barriers relating to service delivery, cost and affordability:

Did you delay treatment because:

Barriers	YES	NO
1- You were living very far from the hospital?		
2- Your residence in the village/town is not linked to a main road?		
3- There is no transport from your residence to this hospital?		
4- You don't know any other person who has undergone this surgery in your village/town?		
5- No one could come along with you?		
6- Your family income is not sufficient?		
7- Do you hold any insurance scheme? if yes which scheme you hold: ____ (1. rsby; 2. bsby; 3. bkky)		
8- Did you come to know about the scheme from other sources (1. tv/radio; 2. posters/banners; 3. agents; 4. word of mouth)		
9- Would you get operated for cataract on your own expense if this scheme was not available: _____		